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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,024	01/23/2001	Robert Harcourt	8008	9339

7590

07/08/2003

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EXAMINER

ROSSI, JESSICA

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 07/08/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/768,024

Applicant(s)

HARCOURT, ROBERT

Examiner

Jessica L. Rossi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/20/03, Amendment B.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,6,8-31,33-37 and 43-47 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,8,10,14-16,21-24,31,37 and 43-47 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-30 is/are allowed.
- 6) ☒ Claim(s) 3,9,11,12,17 and 33-36 is/are rejected.
- 7) ☒ Claim(s) 13 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 15.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Claims 3, 5-6, 8-31, 33-37, and 43-47 are pending. Claims 5-6, 8, 10, 14-16, 21-24, 31, 37, and 43-47 are withdrawn from further consideration without traverse (see paper no. 9).
3. In view of the papers filed 12/11/01, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(c). The inventorship of this application has been changed by addition of John Meadowcroft. *Please note that examiner entered this change on 9/10/02, but inadvertently failed to include this form paragraph in the office action mailed on 12/2/02.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of the file jacket and PTO PALM data to reflect the inventorship as corrected.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Voss (US 3859408).

With respect to claim 3, Voss is directed to making a hose. The reference teaches pressurizing an extruded rubber hose 10/12 (column 2, lines 30-35; column 3, lines 9-11), trapping air inside the hose by sealing engagement of the hose with a floating mandrel 24 and

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pinch rollers 30 (Figure 1; column 3, lines 5-7), and vulcanizing the hose from the outside to the inside using an energy source 20 that directly contacts the molding apparatus 14 but not the hose itself (Figure 1; column 3, lines 23-27).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 3 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merck et al. (US 3038523) in view of Dougherty.

With respect to claim 3, Merck is directed to making a hose. The reference teaches extruding an interior lining 17 of the hose over a mandrel 16 (Figure 1; column 2, lines 50-51), which terminates after extrusion of the cover at 105 (Figure 5; column 5, lines 10-12), pressurizing the mandrel-less hose by trapping pressurized fluid inside the hose by sealing engagement of the hose with the end of the mandrel and pinch rollers 113/114 located downstream of the mandrel (Figure 1a; column 5, lines 2-27 and 47-48), and vulcanizing the hose from the outside to the inside using a heated curing tube 115 having a jacket through which heated oil circulates such that the hose is never contacted by the heat source (note that tube 115 is identical to tube 33; column 5, lines 45-47; column 3, lines 9-12). The reference is silent as to pressurizing the inside of the hose by trapping air inside the hose.

It is known in the art to make a hose by trapping air or fluid inside the hose during vulcanization by sealing both ends of the hose, as taught by Dougherty (column 8, lines 59-62). One reading the Merck reference as a whole would have appreciated that the means for pressurizing the hose is not critical to the invention and therefore would have been motivated to

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use air as an alternative to fluid because such is known in the art, as taught by Dougherty, where only the expected results of maintaining the shape of the hose during vulcanization would have been achieved.

With respect to claim 11, all the limitations were addressed above with respect to claim 1 except the hose being drawn through the pinch rollers by a haul-off and vulcanizing the hose using a non-contact heater located between the mandrel and pinch rollers.

As for the haul-off, Merck teaches the hose being drawn through the pinch rollers 113/114 by haul-off 104 (Figure 1a; column 4, lines 65-66).

As for the location of the heater 115, Merck teaches it being located after the mandrel 16 and before the pinch rollers 113/114 (Figure 1a; column 5, lines 2-3).

As for vulcanizing the hose, Merck teaches using a non-contact energy source (heated oil within the sleeve) but not a non-contact heater since the sleeve contacts the hose. It is known in the art to vulcanize a hose having pressurized fluid or air trapped within using various methods including hot liquid and microwaves, as taught by Dougherty (column 8, lines 59-63), wherein the skilled artisan would have appreciated that microwaves constitute a non-contact heater. One reading the Merck reference as a whole would have appreciated that the means for vulcanizing the hose is not critical to the invention and therefore would have been motivated to use microwaves as an alternative to the heated tube 115 because such is known in the art, as taught by Dougherty, wherein only the expected results of vulcanizing the hose would have been achieved. **Please note that the present invention discloses a microwave heater as a non-contact heater.**

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Regarding claim 12, selection of a vulcanization temperature would have been within purview of the skilled artisan at the time the invention was made depending on the material of the hose. However, Merck teaches vulcanizing between 340-380°F, wherein 340-350°F falls within the claimed range.

8. Claims 9 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Merck in view of Dougherty, Hopkins, and the collective teachings of Gattrugeri (US 3904144) and Kunz et al. (US 6296054).

With respect to claim 9, all the limitations were addressed above with respect to claims 3 and 11 except a check valve being located in the mandrel.

Merck in view of Dougherty teaches the air being supplied into the interior of hose 17, as it exits the mandrel 16, through a tube 71 located within the mandrel and terminating at 105 along with the mandrel (Figure 5; column 5, lines 5-12 and 22-24).

It is known in the art to trap pressurized air inside a hose during vulcanization thereof where air is supplied from a source 33 equipped with a valve 34 for regulating the flow of the air, as taught by Hopkins (Figure 3; column 3, lines 22-30 and 38-42). It is also known to regulate the flow of pressurized air through a mandrel by means of a check valve located within the mandrel, as taught by the collective teachings of Gattrugeri (abstract) and Kunz (column 9, lines 1-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to regulate the flow of the pressurized air of Merck in view of Dougherty by placing a check valve within the tube 71, which is located within the mandrel 16, because it is known to use a valve to regulate the flow of pressurized air within the interior of a hose during

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vulcanization, as taught by Hopkins, and because it is known to use a check valve located within a mandrel to regulate the flow of pressurized air therethrough, as taught by the collective teachings of Gattrugeri and Kunz, where this would prevent too much or too little air from being supplied to the interior of the hose thereby preventing damage thereto.

With respect to claim 33, all the limitations were addressed above with respect to claim 9.

Regarding claim 34, all the limitations were addressed above with respect to 9.

Regarding claim 35, all the limitations were addressed above with respect to claim 11 (Dougherty teaches heating by microwaves – radiant heating).

9. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Merck, Dougherty, Hopkins, Gattrugeri, and Kunz et al. as applied to claim 33 above, and further in view of Satzler (US 4490316).

Regarding claim 36, Merck is silent as to controlling the diameter of the hose. It would have been obvious to control the diameter of the hose by means of the check valve because this would prevent too much or too little air from being supplied to the interior of the hose thereby preventing damage thereto. However, it would also have been obvious to the skilled artisan to control the diameter of the hose by controlling the speed of extrusion because such is known in the art, as taught by Satzler (Figure 1; column 1, lines 9-10; column 2, lines 1-11 and 55-60), where this allows the final diameter of the hose to be predetermined.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 4326905) in view of Merck et al. and Dougherty.

With respect to claim 17, Tanaka is directed to making a hose. The reference teaches extruding rubber resin (column 8, lines 36-38 and 39-40) onto, into, and through a woven fabric

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4 (Figure 3; column 3, lines 20-25; column 6, lines 26-27; column 8, lines 50-52) located on a mandrel 25 (Figure 10; note Figure 10 is embodiment that is variation of that depicted in Figure 4 when resin not extruded; column 5, lines 14-15), which only has a length long enough to complete extrusion (column 6, lines 43-46), passing the mandrel-less hose through a cooling bath 71 to solidify the resin (column 8, lines 54-55), and guiding the hose by means of rollers to a take-up winding machine (column 8, lines 18-25). The reference is silent as to pressurizing the hose with a gas, sealing the inside of the hose with respect to the mandrel, pulling the hose through a non-contact heater to vulcanize it, and pinching and sealing the vulcanized hose as it leaves the heater.

As set forth above in paragraph 8, Merck teaches extruding an elastomeric interior lining 17 (column 1, lines 12-13) of a hose over a mandrel 16, which terminates after extrusion at 105, pressurizing the mandrel-less hose by passing pressurized fluid through tube 71 located within the mandrel and trapping the fluid inside the hose by sealing engagement of the hose with the end of the mandrel and pinch rollers 113/114 located downstream of the mandrel, and vulcanizing the hose from the outside to the inside using a heated curing tube 115, wherein the skilled artisan would have been motivated to use pressurized air in place of fluid and a non-contact microwave heater in place of tube 115, as taught by Dougherty, for the reasons set forth above.

Although Tanaka teaches cooling the extruded resin to solidify the same and form the finished hose, the skilled artisan would have appreciated that processing steps subsequent to extrusion, such as heating and/or cooling, are largely dependent on the type of material used to make the hose. Therefore, since Tanaka is mainly concerned with formation of the woven

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reinforcement and not the type of resins extruded onto it nor the subsequent processing steps used to make the finished hose, and the type of resins used are not critical to the invention such that Tanaka teaches using a variety of resins including rubber (column 8, lines 32-37), which is elastomeric, the skilled artisan would have been motivated to make the hose of Tanaka using an elastomeric material that requires vulcanization, as taught by Merck, and therefore would have been motivated to perform the processing steps of Merck in view of Dougherty following the extruding step of Tanaka because such allows for continuous vulcanization of an elastomeric hose while maintaining the shape thereof.

Allowable Subject Matter

11. Claims 25-30 are allowed.

With respect to claim 25, and as set forth in the previous office action, the prior art fails to teach or suggest a process for making a hose comprising feeding **woven cloth over a tube and mandrel**, supplying **gas through the woven cloth, into the tube, and through the mandrel**, extruding rubber onto, into, and through the woven fabric forming an unvulcanized hose, pressurizing the unvulcanized hose, sealing the inside of the hose with respect to the mandrel, vulcanizing the hose, and sealing the hose as it is removed from the vulcanizer. It is noted that Applicants brought this to the examiner's attention on p. 13 of the response dated 2/13/03.

Regarding claims 26-30, they depend from claim 25.

12. Claims 13 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Regarding claim 13, and as set forth in the previous office action, the prior art fails to teach or suggest vulcanizing by a non-contact steam tube.

Regarding claim 18, and as set forth in the previous office action, the prior art fails to teach or suggest pressurizing the unvulcanized hose by intermittently supplying gas under pressure through a gas supply cup to the inside of the hose.

Regarding claims 19-20, they depend from claim 18.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jessica L. Rossi
Patent Examiner
Art Unit 1733



jlr
July 1, 2003


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700